Operating Instructions
Passive DC signal isolator SINEAX TI 816

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1. Read first and then ...
The proper and safe operation of the device assumes that the operating instructions is read carefully and the safety warnings given in the various Sections are observed.

6. Mounting
7. Electrical connections

The device should only be handled by appropriately trained personnel who are familiar with it and authorised to work in electrical installations.

2. Scope of supply
Signal isolator (Fig. 1)
1 ea. operating instructions (Fig. 2) in English, French, German

3. Brief description
The signal isolator SINEAX TI 816 serves to electrically insulate an analogue DC signal in the range 0...20 mA which depending on version is then converted to a current or voltage signal (0...20 mA or 0...10 V). It does not require a separate power supply.

The instrument fulfills all the important requirements and regulations concerning electromagnetic compatibility EMC and Safety (IEC 1010 resp. EN 61 010). It was developed and is manufactured and tested in strict accordance with the quality assurance standard ISO 9001.

4. Versions
There are two versions of the DC signal isolator SINEAX TI 816 available.

<table>
<thead>
<tr>
<th>Description</th>
<th>Output signal A</th>
<th>Order code</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passive DC signal isolator</td>
<td>0...20 mA</td>
<td>816-5110</td>
<td>990 722</td>
</tr>
<tr>
<td>input signal E: 0...20 mA,</td>
<td>0...10 V</td>
<td>816-5111</td>
<td>994 089</td>
</tr>
<tr>
<td>with 1 isolation and</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>transmission channel, in</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>carrying rail housing N12</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. Technical data
Input signal E
DC current: 0...20 mA
Max. permissible current: 50 mA
Voltage limiter: 18 V ± 5% (with zener diode)
Voltage drop: < 2 V (for 500 Ω burden)
Overshoot: < 20 µA (typical 5 µA)

Output signal A
DC current or
DC voltage: 0...20 mA or 0...10 V
Limit: Approx. 30 mA\(^1\)
Approx. 15 \(V\)\(^2\)
Max. burden: 600 Ω\(^1\)
Internal resistance: 500 Ω\(^2\)
Residual ripple: < 20 mV ss
Time constant: Approx. 5 ms

Accuracy data
Error limits:
< ± 0,1%\(^1\)
(Reference value 20 mA, linearity error included)
< ± 0,2%\(^1\)
(Reference value 10 V, linearity error included)

Ambient conditions
Operating temperature:: –20 to + 65 °C
Storage temperature: –40 to + 85 °C
Annual mean relative humidity: ≤ 75% Standard climatic rating
Seismic test: 5 g, < 200 Hz, 2 h in each of 3 directions
Shock test: 50 g, 10 shocks in each of 3 directions

\(^1\) With current signal
\(^2\) With voltage signal
6. Mounting

The SINEAX TI 816 isolator is suitable for mounting on two different types of standard rails:
- onto the G-type rail EN 50 035-G32
- onto the top-hat rail EN 50 022-35 × 7.5.

Simply clip the signal isolator onto the carrying rail acc. to Fig. 3 or Fig. 4.

7. Electrical connections

Easily accessible screw terminals are provided at the front of the signal isolator (Fig. 6) which accept wire gauges up to 2.5 mm² (stranded wire) or 4 mm² (non-stranded wire).

Note that, ...

... the data required to perform the electrical insulation task agree with the data on the nameplate of the SINEAX TI 816 (input signal and output signal, see Fig. 5)!...

... in the case of isolators with current outputs 0...20 mA, the total resistance of the external leads (receiver plus leads) does not exceed the max. burden of 600 Ω. See “output signal”, section “5. Technical data”!

... in the case of isolators with a voltage output 0...10 V, the external receiver connected across the output has a sufficiently high internal resistance Ria in relation to the SINEAX TI 816 output impedance of 500 Ω. See “Output signal” in Section “5. Technical data”!

The error due to Ria is:

\[ F [\%] = \frac{500 [\Omega] \cdot 100}{Ria [\Omega]} \]

... that input and output cables should be twisted pairs and run as far as possible away from heavy current cables!

8. Commissioning and maintenance

The device is in operation as soon as the input signal E is connected. The signal isolator requires no maintenance.

9. Releasing the signal isolator

When dismantling the SINEAX TI 816 ...

... from G rails proceed according to Fig. 7. Firstly press the signal isolator upwards (manipulation 1) and tip it upwards at the same time (manipulation 2).

... from top-hat rails proceed according to Fig. 8. Tip the signal isolator upwards.

10. Dimensional drawings

![Fig. 9. SINEAX TI 816 on G-type rail EN 50 035 – G.32.](image)

![Fig. 10. SINEAX TI 816 on top-hat rail EN 50 022 – 35 × 7.5.](image)